

REMARKS & ARGUMENT

With this amendment the applicant has amended independent claims 1, 5 and 9 to specifically recite structural differences such as centralized processing and restrict the scope of the claims commensurate with the true spirit of the applicant's embodiment.

Claims 1,2 and 5-10 stand rejected under 35 USC 102(b) as being anticipated by Hattori '055 patent. A quick reading of Hattori's patent suggests similarities, but a more detailed reading exposes the significant differences. The applicant presents the following significant non-obvious differences.

1. Hattori's air pressure sensor utilizes a single magnet assembly consisting of a bar magnet that varies position with air pressure centered between two closely positioned outer bar magnets used to force rotation of the center magnet. In sharp contrast the applicant's claims call for an air pressure sensor with two separate magnets, the first is a cylinder mounted magnet that varies position with air pressure, the other magnet is fixed approximately 90 degrees around the rim, and used as a reference. In Hattori's embodiment cylinder mounted magnet does not vary position with air pressure. In support of this the applicants cites from Hattori patent column 7 lines 41-56 as follows.

"When the vehicle 4 travels, the wheel assembly 5 rotates, and the sensor 1 passes the vicinity of the detection unit 2, an electromotive force is generated in the magnetic detector 21a by magnetic forces of the magnets 12a, 12b and 14 in the sensor 1. The electromotive force, as shown in FIG 7, changes correspondingly to the position of the moving magnet 14 in the sensor 1. Moreover, the position of the moving magnet 14 moves correspondingly to an air pressure P of the tire 4a as described above. Therefore, when the air pressure P changes as $P1 < P2 < P3 < P4$, the moving magnet 14 rotates, its positions change, and levels and phases of an electromotive force V generated in the magnetic detector 21a change.

In the case of this embodiment, the electromotive force is converted from analog to digital values and its level is classified into 4 stages by the level detection circuit 21c.”

2. Applicant’s claims recite centralized processing whereas Hattori contemplates and teaches only distributed processing.

3. Consequently in applicant’s embodiment the transducer measures the angle between the reference and position magnet, whereas Hattori measures the rotation of the central bar magnet.

4. The range and resolution are also quite different in the two embodiments. The applicant’s range covers the entire length of the piston whereas Hattori’s range is limited to one rotation of the central bar magnet.

5. The Hattori sensor design is sensitive to vibration perpendicular to the road, The applicant’s sensor is sensitive to noise parallel to the road. The vibration vector is many times greater perpendicular to the road, enough to overcome the signal in Hattori’s design. The majority of Hattori’s patent deals with the transmission of data from the distributed processing units to the central alarm and display unit by radio. The applicant’s unit transmits raw signals to a centralized processing unit by wire.

6. Applicant’s claims call for continuous and real time which Hattori does not teach. Accordingly the applicant’s embodiment provides high continuous resolution in real time, dependent on the sampling rate. Hattori’s embodiment and associated teaching is limited to low resolution which are quantized to 8 levels, dependent on the thread pitch for which 1 rotation of the bar magnet travels.

7. Applicant employs a simple sensor and transducer. A single electronics module, consisting of a central processing unit, buttons and a display. Hattori on the other hand employs complex transducer design and complex system of distributed processing modules comprising plurality of amplifiers, cpu’s, transmitters, receivers and a display.

Claims 3 & 4 also stand rejected under 35 USC 103(a) as obvious over Hattori. However claims 3 and 4 are dependent claims narrower in scope than the independent claim 1 upon which they depend and therefore patentable for the reasons enumerated above.

5 Furthermore the federal circuit has held , “Mere fact that the prior art may be modified to reflect features of claimed invention does not make modification, and hence claimed invention, obvious unless desirability of such modification is suggested by prior art....” In Re Fitch, 922 F.2d 1260, 23 USPQ.2d 1780 (Fed. Cir. 1992) [1780]

10 The mere fact that the prior art may be modified in the manner suggested by the examiner does not make the modification obvious unless the prior art suggested desirability of the modification. In re Gordon, 733 F.2d 902, 221 USPQ 1127 [1783]

Interestingly it has been most recently set forth that the motivating suggestion must be explicit, as was decided in the seminal case of Winner International Royalty Corp. v/s Wang, No. 962107, 48 USPQ.2d 1139 (D.C. 1998) where the court held:

15 “ ... invention cannot be found obvious unless there was some explicit teaching or suggestion in art to motivate one of ordinary skill to combine elements so as to create same invention. “ [at 1140]

20 “ ... there must have been some explicit teaching or suggestion in the art to motivate one of ordinary skill to combine such elements so as to create the same invention. “ [at 1144]

25 It is further applicant’s position that the applicants invention is simply elegant and therefore may appear obvious in hindsight but in reality it is any thing but obvious. This is substantiated by the fact that the recognized need has remained unmet until this inventor provided the spark of genius.

SIMPLICITY AND ELEGANCE IS NOT OBVIOUS

It is ironic that such a simple invention has escaped the experts for such a long time. The applicants invention is simply elegant and therefore may appear obvious in hindsight but in reality it is any thing but obvious. In retrospect the applicant's invention appears simple, but this simplicity is elegant and non-obvious and is the hallmark of most ingenious good inventions. Simplicity does not negate non-obviousness. "The subject matter as a whole" in 35 USC 103, is particularly problematic in simple inventions.

In 1908, the United States Supreme Court, in *Expanded Metal Co. v. Bradford*, 214 U.S. 366, 381, 29 S.Ct. 652, 53 L.Ed.1034, 1039 said, "The fact that the invention seems simple after it is made does not determine the question; if this were the rule, many of the most beneficial patents would be stricken down."

In 1959, Circuit Judge Medina, in a case in the Second Circuit Court of Appeals (*American Safety Table Co v/s Schreiber*, 269 F.2d 255, 263, 122 USPQ 29,36 said, " In the last analysis the burden of Schreiber & Goldberg's attack on the first patent for lack of invention comes down to its simplicity.

But experience in practically every field of human endeavor has demonstrated that the very simplicity of a new idea is the truest and most reliable indication of novelty and invention, when others have devoted extensive effort and exhausted their resourcefulness in a futile search for the solution of the same vexing problem.

Potts v. Creager, 1895,155 U.S. 597, 608, 15 S.Ct.194, 39 L.Ed. 275; *Lyon v. Bausch & Lomb Optical Co.*, 2 Cir., 1955, 224 F.2d 530,534, certiorari denied 350 US 911, 76 S.Ct. 193; *H C White v. Morton E. Converse & Son Co.*, 2 Cir., 1927, 20 F.2d 311, 313, certiorari denied, 275 U.S. 5.47, 48 S.Ct. 85, 72 L.Ed. 419.

DANGERS OF HINDSIGHT

The Supreme Court, in *Calmar, Inc. v. Cook Chemical Co.* (383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966)) mentioned the danger of "slipping into hindsight," citing the case of *Monroe Auto Equipment Co. v. Heckethorn Mfg. & Sup. Co.*, 332 F.2d 406, 141 USPQ 549 (6th Cir.1964) said,

" We must view the prior art from the point in time just prior to when the patented device was made. Many things may seem obvious after they have been made and for this reason the courts should guard against slipping into use of hindsight.

We must be careful to "view the prior art without reading into that art the teachings of appellant's invention." *Application of Sporck*, 301 F.2d 686, 689 (CCPA).

Its the applicant's position that Justice Frankfurter was quite right in his dissent in *Marconi Wireless Telegraph Co. v. United States*, 320 U.S.1, 60, 63 S.Ct.1393, 1421, 87 L. Ed.1731, 1763 (1943)

" The discoveries of the science are the discoveries of the laws of nature and like nature do not go by leaps. Even Newton and Einstein, Harvey and Darwin built on the past and on their predecessors. Seldom indeed has a great discoverer or inventor wandered lonely as a cloud.

Great inventions have always been parts of an evolution; the culmination at a particular moment of an antecedent process. So true is this that the history of thought records striking coincidental discoveries-showing that the new insight first declared to the world by a particular individual was "in the air" and ripe for discovery and disclosure.

The real question is how significant a jump is the new disclosure from the old knowledge. Reconstruction by hindsight, making obvious something that was not at all obvious to superior minds until someone pointed it out, - this is too often a tempting exercise for astute minds. The result is to remove the opportunity of obtaining what Congress has seen fit to make available."

In summary in the applicant points out the following differences over the prior art cited by the examiner.

1. Applicant's air pressure sensor employs strong magnet on an air piston, plus a fixed reference magnet, whereas Hattori employs bar magnet mounted on piston
5 *extension*, between two oppositely aligned magnets.

2. For transducer detection the applicant relies on the intensity of the magnetic field of the sensor and the fixed magnet whereas Hattori utilizes intensity *and phase* of the *sensor* magnet.

3. The applicant's embodiment provides high continuous resolution in real
10 time, dependent on the sampling rate. Hattori is limited to low resolution which quantized to 8 levels, dependent on the thread pitch for which 1 rotation of the bar magnet travels.

4. Applicant's embodiment also provides much broader range continuous over the piston travel, dependent on the sampling period, where as in Hattori's embodiment
15 the range is limited to 1 rotation of the bar magnet.

5. The applicant achieves high resolution by calibrating the distance between the sensor and center of the tire. To achieve high resolution Hattori must calibrate and compensate for distance between the sensor and transducer.

6. Noise sensitivity in applicant's embodiment is parallel to the direction of
20 travel. In Hattori's embodiment noise sensitivity is perpendicular to the direction of travel which is significantly higher and adverse.

7. In applicant's embodiment sensor pick up is discrete analog level detector independent of phase. Hattori sensor pick up depends upon phase.

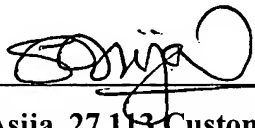
8. The applicant employs centralized processing. When the magnetic field
25 from the fixed and transducer exceeds a threshold level, a continuous digital stream of pulses is generated, which is continuously connected to a centralized electronics module for processing, display and alarm via a wire.

Hattori in sharp contrast employs distributed processing wherein the sensor pickup and processing electronics are located near the data source, they then transmit the computed air pressure via radio to display and alarm electronics modules.

5 The examiner also compared the cylindrical magnets of Hattori and Applicant. In reality Hattori's cylindrical shape bears no relationship to functionality of the air pressure. It is merely a packaging relationship. The cylinder mounted magnet in applicant's invention bears a direct functional relationship to tire pressure measurement.

10 In conclusion it is the applicant's position that the inventor with this amendment has overcome all the objections of the examiner and has otherwise complied with all the requirements of the examiner and a "notice of Allowance" is earnestly solicited.

15 Respectfully Submitted



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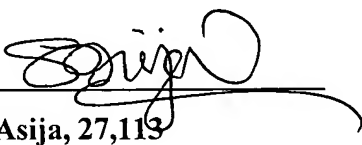
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